



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,185	10/28/2003	Manabu Oku	2204-031509	4303

28289 7590 01/20/2006

THE WEBB LAW FIRM, P.C.  
700 KOPPERS BUILDING  
436 SEVENTH AVENUE  
PITTSBURGH, PA 15219

EXAMINER
----------

YEE, DEBORAH

ART UNIT	PAPER NUMBER
----------	--------------

1742

DATE MAILED: 01/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/695,185

Applicant(s)

OKU ET AL.

Examiner

Deborah Yee

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 to 5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 1 to 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 10/027,850.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as obvious over Japanese patent 408199235 for the reasons set forth in the previous office action dated 6-8-05 and further in view of Japanese patent 410017999.

3. JP'235 in the table on page 7 discloses ferritic stainless steel alloy examples having compositions which meets the recited claims but fail to include Ni as an alloying constituent. It is, however, well known in the art to incorporate small amounts of Ni to analogous ferritic Cr stainless steel to further enhance hardness and strength, as evident by JP'999, paragraph 20 on page 4. Since hardness and strength are desired by JP'235, then adding small amounts of Ni to prior art alloy would be obvious in view of secondary teaching to produce no more than the known and expected effect from such an addition.

### *Claim Objections*

4. Claims 1 <sup>to 5</sup> and ~~3~~ are objected to because of the following informalities: The time and temperature unit of measurement for the equation is not recited. It is recommended

to further define the equation by incorporating –whereby temperature is in degree centigrade and time is measured by hour. Appropriate correction is required.

### ***Response to Arguments***

5. Applicant's arguments filed 11-07-05 have been fully considered but they are not persuasive.

6. Applicant stated that claimed process conditions are not taught or suggested by JP'235 because there is no disclosure on the relationship between the heating temperature and the heating time during precipitation heating as expressed by the claimed lambda equation. It is the examiner's position that JP'235 discloses steel alloy 3 on page 7 which meets the composition except fails to include Ni but Ni would be an obvious additive for the reasons set forth in paragraph 3, and is processed according to method example 13 on page 8 by aging at 800C for 10 hours and 850C for 5 minutes (0.08 hours) followed by annealing at 900C for 1 minute which meets claim 1. Also when calculated, the lambda value range of 19-23 is met. Even though prior art does not teach the recited lambda equation as recited by the claim, such would not be a patentable difference because it has been held that there is no invention involved in the discovery of a general formula if it covers a composition described in the prior art.

7. Moreover, even though prior art method teaches the additional step of cold rolling after aging and before annealing, such would not be excluded by the claimed recitation "comprises". Also page 13 of applicant's specification on paragraph 4, discloses that other manufacturing condition can be incorporated into present invention process, such as a cold rolling. Hence claims would not patentably distinguish over prior art.

8. Applicant stated that Claim 1 has been amended to include Ni in the amount of 0.07 to 0.6% , and is not taught by prior art. It is the examiner's position that Ni would be an obvious additive for the reasons stated in paragraph 3.

***Allowable Subject Matter***

9. Claims 3 to 5 are allowed when objection in paragraph 4 is overcome.

10. The following is an examiner's statement of reasons for allowance: It is the examiner's position that the art of record does not teach or fairly suggest the method of manufacturing a ferritic stainless steel sheet having good workability with less anisotropy , as claimed, comprising the steps of : providing a ferritic stainless steel alloy having the recited composition; precipitation heating at 450 to 750C for a time period not longer than 20 hours with the provision that a value  $\lambda$  defined by the recited equation is controlled within a range of 13-19 so as to distribute Nb-containing precipitates of 0.5 microns or less in particle size at a ratio of 0.4 mass% or more; and finish annealing at 900 to 1100C for a time period not longer than 1 minutes.

11. Applicants have discovered that good workability is achieved in a ferritic stainless steel by controlling the Nb-containing precipitates. The Nb-containing precipitates are dissolved in a steel matrix via a finish annealing step that eliminates intra-plane anisotropy and improves toughness. To accelerate the dissolution of Nb-containing precipitates, the particle size and distribution rate of the precipitates during an aging step are controlled according to the formula of  $\lambda = (T - 273) \times (20 + \log t) / 1000$ .

12. The art of record (JP'235 being the closest prior art) does not teach or suggest applicants' inventive concept. More JP'235 process examples do not disclose aging at a time and temperature within the ranges recited by the claims. Also when calculated, none of the prior art process examples meet or closely meet the claimed  $\lambda$  equation range of 13 to 19.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on Monday-Friday from 6:00 to 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Deborah Yee  
Primary Examiner  
Art Unit 1742

dy